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A Study of Instructional Dimensions that Affect Reading Comprehension

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Abstract

This paper describes a study aimed at linking current research on reading comprehension to classroom instruction. One group of children received a reading lesson as prescribed in a basal series that directed attention to irrelevant content while failing to consistently highlight important story concepts. A second group received a revised lesson that consistently directed attention to important story concepts. The revised lesson produced recalls containing more central content and fewer additions not constrained by the text. Poor readers recalled more central content, while good readers exhibited greater retention and elaboration of central content in the revised lesson condition.

This paper describes a study in a program of research aimed at improving instructional practices associated with reading in the elementary schools. It is our intent, through this work, to link recent research on reading comprehension to the methods used in schools to foster the development of comprehension abilities. This research is the initial stage in formally assessing some notions about problematic aspects of instruction that have been previously identified identified by Beck, McKeown, McCaslin and Burkes, 1979).

In this earlier work Beck and her collegues examined instructional practices associated with comprehension in two widely used basal reading series. The analysis was structured around the components of the directed reading lesson, the traditional format for reading instruction. The lesson begins with a preparation component which presents vocabulary that will be encountered in reading and background information related to the story. Silent reading of the story then follows. In the primary grades the silent reading is divided into smaller segments, referred to as silent reading units (SRUs). The final component is a period of questions and discussion of what has been read. Beck and her collegues identified practices that, seemed problematic for comprehension. Such problematic practices were differentially found within the three components of the lessons examined.

In order to investigate the effect of these problems in the present study, we selected a single story that contained prototypical problems in all three areas of the directed reading lesson. Story components were then redesigned to eliminate the problematic aspects

and the lesson was presented to children in its original and revised formats.

The approach chosen for this research, that of redesigning a single reading lesson, stems from a notion that daily encounters with reading lessons that consistently facilitate text comprehension may lead to the development of general comprehension fluency. Any attempt to test the validity of such a global notion must begin with a demonstration that comprehension of a single text can be enhanced by a careful structuring of the lesson elements surrounding the story text. If this can be demonstrated on several individual stories, then the notion that the lesson elements surrounding a text can be "engineered" to enhance comprehension of specific materials will have some empirical basis, and recommendations and procedures for doing so can be made available.

The Story Lesson

Our goal of improving comprehension of discourse requires that we give consideration to what it is that a reader should get from a text. Our concern is that the reader get control of the material that is central to story development. "Central" material can be described as the plot or gist of a story. With these ideas in mind, we developed the notion of a story map, which we define as a unified conception of the main stated and implied events of a story (Beck et al., 1979).

To assist the reader in generating a story map, lesson elements surrounding the story should fulfill two criteria. First, the elements should proceed in a sequence that matches the progression of ideas and events in the story. Second, lesson elements should be

framed to highlight the interrelationship of story ideas. Our informal notions of a story map are related to a formal text analysis we have developed (cf., Omanson, in press). This analysis identifies the events and states of a story, and the relations that connect them, and on the basis of these relations classifies the content of narratives as Central or Non-Central. Central content describes the gist or plot of a narrative and embodies our intuitive notion of a story map. The interrater reliability coefficient of .91 was obtained in using this analysis to identify Central and Non-Central content.

The story selected for use in the present study is a late second grade story entitled "The Raccoon and Mrs. McGinnis" (Clymer & Martin, 1976, Level 7). The story can be summarized as follows:

> A raccoon lives in a tree beside Mrs. McGinnis' house. Mrs. McGinnis leaves bread on her doorstep for the raccoon each night, and cares for her cow and two pigs. One night she wishes on a star for a barn for her animals. That same night two bandits come to steal her animals. The raccoon follows them through the woods, and eventually climbs a tree. The bandits fear they are being followed when they catch sight of the raccoon in the tree. Seeing only his mask in the moonlight, the bandits mistake the raccoon for another bandit. They flee, dropping a bag of money. The raccoon picks up the money and eventually drops it on Mrs. McGinnis' doorstep while looking there for food. Mrs. McGinnis finds the money and attributes her good fortune to wishing upon a star. She then uses the money to build a barn.

A concept critical to understanding the story is that it revolves around a series of coincidences. Mrs. McGinnis' wish comes true because the raccoon just happens along after the bandits, climbs a tree, and is coincidentally mistaken for a bandit. The lesson elements surrounding the story do not promote the concept of coincidence. Rather, they are concerned with promoting a variety of

concepts that are often distracting to understanding this and other key aspects of the story.

Potential problems for comprehension of the "McGinnis" story appear in the preparation component, the pictures accompanying the text, and the questions asked after the reading of each Silent Reading Unit (SRU). The preparation component, or direction setting, for the story focuses on a discussion of raccoons as clever, playful animals. Children are directed to read the story for "enjoyment" while looking for "unusual things that happened to Mrs. McGinnis as a result of a raccoon" (p. 286, Teacher's Manual). No attempt is made to lay the groundwork for interpreting the story as coincidential in nature.

Our redesign of the preparation component aims to introduce the concept of coincidence and set up conditions that might help the young reader to understand story events as coincidental. These conditions include the fact that bandits and raccoons share the physical characteristic of a masked face, that animals behave in a routine manner, focusing on seeking food and avoiding danger, and that raccoons habitually pick up objects that are in their path.

The pictures that accompany the original story are drawn in a fanciful style. They promote the idea that a fairy tale is transpiring, rather than a plausible story. Although the pictures themselves are quite engaging, the conflict of their style with the story tenet is potentially problematic to comprehension. In the redesign of the lesson, the pictures have been redrawn in a realistic style.

The questions provided by the reading program to be asked after

each SRU are uneven in quality. While some aim to elicit important story content, others tap information that is irrelevant to the story line. Examples of the latter type include a question that asks where one might find out why raccoons swish their food in water before eating it. Since these questions are placed between segments of the story when children are in the process of constructing meaning, they seem potentially distracting. The redesigned questions systematically require the reader to establish connections between important story states and events in such a way that the plot is reconstructed.

Method

Subjects

The entire study involved six conditions. In this paper, only the results from two conditions will be discussed. In one condition, 10 children in the second grade were given Ginn's orignal lesson. In the second condition, another group of 10 children were given the revised lesson. The children were drawn from an urban school in a suburb of Pittsburgh and were matched on their performance on the Level I Reading Subtest of the Wide Range Achievement Test.

Scoring

Recall was the measure of comprehension used in this study. Two types of recall were obtained from the children. First, the children recalled each of the six SRUs that they read, yielding six interim recalls. This gave us an index of how much of the story the children remembered *during* reading. Second, after the last interim recall, the children were asked to recall the entire story (final recall). This gave us an index of how much of the story the children remembered

after reading.

Results

The first result of interest is that children given the revised lesson recalled more Central content at final recall than children given the orginal lesson, while at interim recall the two groups recalled the same amount of both Central and Non-Central content. These results are presented in Table 1. An analysis of variance yielded a reliable interaction among condition, delay (interim or final recall), and Centrality, F (1,18) = 4.25, $p < .05$. Newman-Keuls tests revealed that only the difference between the two groups on the amount of Central content appearing in final recall was reliable, $p < .01$. This finding suggests that the representation of Central content formed during reading is not established as well for children receiving the original lesson as it is for children receiving the revised lesson. An examination of the individual recall scores in each condition revealed large variability, suggesting that individual differences in reading ability were, as usual, an important variable. To obtain an estimate of the influence of individual differences, the children in each condition were divided into ability groups by using a median split on their grade equivalent scores.

An examination of the effects of condition and delay with respect to these ability groups shows that the revised lesson differentially helped skilled and less-skilled readers. These results are presented in Table 2. For less-skilled readers, the revised lesson enhanced the amount of Central content recalled. This is evidenced by a reliable interaction among condition, delay, Centrality and ability, F (1,16) =

11.61, $p < .05$, in which a Newman-Keuls test subsequently revealed that less-skilled readers receiving the revised lesson recalled more Central content during interim recall than did less-skilled readers receiving the original lesson. By final recall, however, this advantage was lost, $p > .05$, Newman-Keuls test.

For skilled readers the revisions enhanced the amount of Non-Central content recalled, and the permanence of Central content that was recalled. This is evidenced by the fact that skilled readers receiving the revised lesson recalled an equal amount of Central content but more Non-Central content than those receiving the original lesson during interim recall. By final recall, however, the recall of Non-Central content by children receiving the revised lesson drops to a level equal to that of children receiving the original lesson, while the recall of Central content drops very little in comparison to the loss sustained by children receiving the orignal lesson. All of these differences are reliable, $p < .05$, Newman-Keuls test.

This pattern of results suggests that without the revisions, less-skilled readers are performing below asymptote in their recall of Central content. As a result, lesson elements that highlight Central content enhance the amount of Central content these children can recall during interim recalls. The revised lesson elements, however, are not sufficient to establish the additional Central content well enough that this improvement remains until final recall. Skilled readers, on the other hand, appear to be performing at asymptote in their recall of Central content without the revisions. The effects of highlighting Central content for these readers evidently makes it even

easier for them to reach asymptote, enabling them to establish Non-Central content well enough to recall during interim recall. The highlighting also, however, establishes the Central content better, so that more is available for recall at final recall.

In summary we have found that revising Ginn's preparation, pictures, and questions to highlight Central content results in greater recall of Central content at final recall. Moreover, we found that for skilled readers, these revisions enhanced the recall of Non-Central content in interim recall, and of Central content in final recall. For less-skilled readers, they enhanced only the recall of Central content in interim recall.

References

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Table 1

Interim and Final Recall of
Central and Non-Central Content

Recall	Unit Type	Lesson Type	
		Revised	Original
Interim	Central	.36	.33
Interim	Non-Central	.17	.17
Final	Central	.27	.12
Final	Non-Central	.08	.05

Table 2

Interim and Final Recall of
Central and Non-Central Content
for Skilled and Less-Skilled Readers

Recall	Reading Ability	Unit Type	Lesson Type	
			Revised	Original
Interim	Skilled	Central	.36	.38
Interim	Skilled	Non-Central	.21	.22
Interim	Less-Skilled	Central	.36	.27
Interim	Less-Skilled	Non-Central	.13	.12
Final	Skilled	Central	.32	.10
Final	Skilled	Non-Central	.12	.05
Final	Less-Skilled	Central	.23	.15
Final	Less-Skilled	Non-Central	.05	.05